

WE CLAIM:

1. An automated target inspection system for inspecting a moving target comprising:
  - a scanning zone comprising a radiation source and a radiation source detector;
  - a first sensor component for automatically sensing when a first portion of the moving target has passed through the scanning zone and a second portion of the moving target is about to enter the scanning zone, wherein the first sensor component sends a signal to the automated target inspection system to initiate a scan of the second portion upon sensing that the second portion of the target is about to enter the scanning zone; and
  - a shutter, triggered by a signal from the first sensor component, for allowing radiation from the radiation source to pass through the scanning zone in the direction of the radiation detector when the second portion of the moving target is passing through the scanning zone and for closing off the radiation when the second portion of the moving target is no longer within the scanning zone.
2. The system of claim 1, wherein the first portion is a passenger portion.
3. The system of claim 1, wherein the second portion is a payload portion.
4. The system of claim 1, wherein the first sensor component senses a gap between the first portion of the moving target and the second portion of the moving target.
5. The system of claim 1, wherein the shutter comprises at least one shielding block driven to open by a solenoid configuration.
6. The system of claim 1, wherein the at least one shielding block is comprised of tungsten.

7. The system of claim 1, further comprising a spring for closing the shutter once the first sensor component senses that the second portion of the moving target is no longer within the scanning zone.
8. The system of claim 1, further comprising a second sensor component for sensing radiation from the radiation source that is outside of the scanning zone.
9. The system of claim 8, wherein the second sensor component is coupled to the shutter and further wherein the shutter is automatically closed in response to a radiation signal from the second sensor component.
10. The system of claim 1, further comprising a photon counter for counting photons comprising the radiation from the radiation source after the photons have passed through the target vehicle.
11. A method for automatically inspecting a moving target with an automated target inspection system comprising:
  - sensing when a first portion of the moving target has passed through a scanning zone and a second portion of the moving target is about to enter the scanning zone;
  - sending a signal to the automated target inspection system to initiate a scan of the second portion upon sensing that the second portion of the target is about to enter the scanning zone;
  - opening a shutter to allowing radiation from a radiation source to pass through the scanning zone in the direction of a radiation detector when the second portion of the moving target is passing through the scanning zone; and
  - closing the shutter to shut off the radiation when the second portion of the moving target is no longer within the scanning zone.

12. The method of claim 11, wherein the shutter opening time is on the order of approximately 40 milliseconds.
13. The method of claim 11, wherein the shutter closing time is on the order of approximately 100-350 milliseconds.
14. The method of claim 11, further comprising sensing radiation that is outside of the scanning zone.
15. The method of claim 11, wherein opening the shutter includes moving at least one shielding block to expose the radiation source.
16. The method of claim 15, wherein moving at least one shielding block to expose the radiation source includes addressing a solenoid configuration.
17. The method of claim 11, wherein closing the shutter includes activating a spring.
18. The method of claim 11, further comprising counting photons comprising the radiation from the radiation source after the photons have passed through the target vehicle.
19. The method of claim 18, further comprising imaging the second portion of the target vehicle based on density data determined from the photon counting.
20. The method of claim 11, wherein the moving target is moving at an approximately constant speed within the range of greater than 0 mph up to approximately 10 mph.
21. A system for automatically inspecting a moving target comprising:  
means for sensing when a first portion of the moving target has passed through a scanning zone and a second portion of the moving target is about to enter the scanning zone;

means for sending a signal to the automated target inspection system to initiate a scan of the second portion upon sensing that the second portion of the target is about to enter the scanning zone;

means for opening a shutter to allowing radiation from a radiation source to pass through the scanning zone in the direction of a radiation detector when the second portion of the moving target is passing through the scanning zone; and

means for closing the shutter to shut off the radiation when the second portion of the moving target is no longer within the scanning zone.